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10/695,928	10/28/2003	Pablo R. Rodriguez	304931.01	7025
22971	7590	07/20/2007	EXAMINER	
MICROSOFT CORPORATION ONE MICROSOFT WAY REDMOND, WA 98052-6399				SURVILLO, OLEG
ART UNIT		PAPER NUMBER		
2142				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

roks@microsoft.com
ntovar@microsoft.com
a-rydore@microsoft.com

Office Action Summary	Application No.	Applicant(s)
	10/695,928	RODRIGUEZ, PABLO R.
	Examiner	Art Unit
	Oleg Survillo	2142

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 29 May 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-35 is/are pending in the application.
- 4a) Of the above claim(s) 1-9 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 10-35 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 28 October 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ . | 6) <input type="checkbox"/> Other: _____ . |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 29, 2007 has been entered.

Response to Amendment

1. This Action is responsive to the amendment filed on May 29, 2007. Claims 1-35 are pending in the application. Claims 1-9 are withdrawn from the consideration as the result of an earlier restriction requirement. Out of claims 10-35, claims 10, 11, 16, 19-21, 23, 32-35 are amended herein. No new claims have been added.

Response to Arguments

2. With regard to the Applicant's remarks filed on May 29, 2007:

Regarding the rejection of claims 10-35 under 35 U.S.C. 102(e) as being anticipated by Nelson, Applicant's arguments have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, new grounds of rejection are made in view of the newly discovered references.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Page 17 line 9 shows operation (510), page 18 line 21 shows step (610). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities:
paragraph [0050] line 2 shows that one or more objects were subdivided in operation (616) wherein it appears from Figure 6 that subdividing of objects is performed at step (618);
paragraph [0054] shows the cache memory (325), however, this reference sign is being used in the description of one of the steps in Figure 3. Paragraph [0028] correctly

shows that a cache memory may be reserved as a portion of system memory (134) and/or storage unit (144).

Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 10, it is ambiguous because it is unclear whether a request received from a computing device is the same or different from a request transmitted. In other words, it is unclear whether a received request is the same as a transmitted request since both requests are referred to as "the request" in the claim.

Claim 13 is recites the limitation "the signal characteristic". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 10, 12, 14, 16, 22, 23, 25, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. (2007/0118670) in view of Greer et al. (US Patent No.: 5,978,828).

As to claim 10, the preamble is given a patentable weight because a potentially limiting element: a virtual resource refers back to the body of the claim.

As to claim 10, Viswanath in view of Greer shows a method for retrieving a virtual resource from a remote computer using a plurality of wireless network interfaces (abstract of Viswanath), comprising:

receiving, from a computing device, a request for the virtual resource comprising receiving a network access request from a serving node (paragraph [0003] in Viswanath);

terminating the received request comprising modifying the received request (step 216 in Fig. 3);

determining a number of available wireless network interfaces comprising determining a number of available gateway GPRS support nodes (20) (paragraph [0021]);

assigning each object to at least one available wireless network interface, at least one object in the resource being assigned a different available wireless network interface than another object in the same resource comprising performing a load balancing of network access requests wherein one or more gateways is determined and one of the gateways is selected for negotiating a request with the network (paragraph [0003] and [0023]); and

transmitting a request for the virtual resource, wherein the request specifies the available wireless network interface assigned to an object comprising modifying network access request to include the IP address of selected gateway and forwarding network access request to selected gateway (paragraph [0041]).

Viswanath does not show that the virtual resource comprises a plurality of objects, determining a number of objects in the virtual resource and the size of each object.

Greer shows that the virtual resource comprises a plurality of objects (Fig. 3 and 4) wherein a virtual resource is interpreted here as comprising a web page which comprises a plurality of objects. Greer also shows determining a number of objects in the virtual resource and the size of each object comprising sending a request to a server for information about a web page (col. 8 lines 30-35) wherein the response message from the server includes the number of objects in the virtual resource and the size of each object (Figure 6; col. 4 lines 18-20).

It would have been obvious to one of ordinary skill in the art to modify the method of Viswanath by having a virtual resource comprising a plurality of objects and determining a number of objects in the virtual resource and the size of each object in order to easily distinguish between multiple parts of the resource.

As to claim 12, Viswanath shows that determining a number of available wireless network interfaces comprises monitoring one or more characteristics of a wireless network interface comprising monitoring the existence of gateways by formulating a list (32) of gateways (paragraph [0021]).

As to claim 14, Viswanath shows that determining a number of available wireless network interfaces comprises monitoring one or more characteristics of a wireless interface stored in a data table in memory comprising formulating a list of gateways that link to the identified APN (paragraph [0021]).

As to claim 16, Viswanath in view of Greer shows that determining a number of objects in the virtual resource and the size of each object comprises querying the remote computer (Fig. 10; col. 8 lines 30-35 in Greer).

As to claim 22, Viswanath in view of Greer shows a computer-readable medium having computer-executable instructions that is capable of performing the method recited in claim 10 (claims 42-49 in Viswanath).

As to claim 23, Viswanath in view of Greer shows an apparatus, comprising:
at least one local communication network interface comprising serving GPRS Support Node (18) (Fig. 1 in Viswanath) for receiving a request for a virtual resource, wherein the virtual resource comprises a plurality of objects (as shown in rejection of claim 10);

a plurality of wireless network interfaces comprising Gateway GPRS support node (20) (Fig. 1 in Viswanath) for transmitting virtual resource requests over wireless communication connections;
a memory module (104) (Fig. 2 in Viswanath); and
a processor (102) (Fig. 2 in Viswanath) executing logic instructions that configure the processor to perform the method steps of claim 10, as discussed above.

As to claim 25, Viswanath shows that the plurality of wireless network interfaces comprises a first network interface for a first wireless network service provider and a second wireless network interface for a second wireless network service provider comprising at least gateway (20a) for network (16a) and at least gateway (20c) for network (16b) (Fig. 1).

As to claim 26, Viswanath shows that the processor polls the wireless network interfaces to determine characteristics of the communication connections managed by the wireless network interfaces comprising formulating a list (32) of gateways (20) that link to the identified APN (paragraph [0021]) and keeping a record of gateways that recently served requests in round-robin approach (paragraph [0033]).

8. Claims 11 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. (2007/0118670) in view of Greer et al. (US Patent No.: 5,978,828) and in further view of Boehm (2004/0085944).

As to claim 11, Viswanath shows that receiving a request for the virtual resource comprises receiving a request from a computing device over a radio access network (Fig. 1).

Viswanath in view of Greer does not explicitly show that a request for the virtual resource comprises receiving a request from a computing device over a local communication network.

Boehm shows that a request for the virtual resource comprises receiving a request from a computing device over a local communication network (paragraph [0020], Fig. 3)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by receiving a request from a computing device over a local communication network in order to receive requests from computing devices locally connected to the portable Wireless Internet gateway (Fig. 3, paragraph [0020] in Boehm).

As to claim 24, Viswanath shows that the at least one local communication network interface comprises a wireless network interface comprising Serving GPRS Support Node (18) (Fig. 1) that communicates with mobile devices (12) over a Radio Access Network (24) (Fig. 1).

Alternatively, Boehm shows that the at least one local communication network interface comprises a wireless network interface comprising a portable gateway (315) (Fig. 3).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Greer by having the at least one local communication network interface comprises a wireless network interface in order to enable wireless communication with mobile devices.

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9. Claims 13, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. (2007/0118670) in view of Greer et al. (US Patent No.: 5,978,828) and in further view of Nelson (2003/0055975).

As to claim 13, Viswanath shows that determining a number of available wireless network interfaces comprises monitoring the existence of gateways by formulating a list of gateways (paragraph [0021]).

Viswanath in view of Greer does not show that a signal characteristic is selected from the group of signal characteristics consisting of: signal-to-noise ratio, available bandwidth, congestion, signal strength, connection cost, and bit error rate.

Nelson shows that a signal characteristic is selected from the group of signal characteristics consisting of: signal-to-noise ratio, available bandwidth, congestion, signal strength, connection cost, and bit error rate (paragraph [0076]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by having a signal characteristic selected from the group of signal characteristics consisting of: signal-to-noise ratio, available bandwidth, congestion, signal strength, connection cost, and bit error rate in order to select a wireless network interface with lowest signal-to-noise ratio, highest available bandwidth, lowest congestion, highest signal strength, lowest connection cost and bit error rate as ones of the old and well known techniques for load balancing (paragraph [0023] in Viswanath).

As to claim 15, Viswanath in view of Greer shows querying local domain name server (30) for a list of available wireless network interfaces.

Viswanath in view of Greer does not show that determining a number of available wireless network interfaces comprises querying the wireless interfaces.

Nelson shows that determining a number of available wireless network interfaces comprises querying the wireless interfaces (paragraph [0083]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by that determining a number of available wireless network interfaces comprises querying the wireless interfaces in order to verify that a selected wireless network interface is currently available to handle the network access request.

10. Claims 17-21, and 27-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. (2007/0118670) in view of Greer et al. (US Patent No.: 5,978,828) and in further view of Non-Patent Literature reference "Dynamic Parallel Access to Replicated Content in the Internet" by Pablo Rodriguez and Ernst Biersack.

As to claims 17 and 30, Viswanath in view of Greer shows all the elements except for assigning each object to at least one available wireless network interface comprises assigning an object to two or more available wireless network interfaces if the size of the object exceeds a threshold.

Rodriguez and Biersack show a method of parallel downloads from a plurality of servers and a parallel access with a scheme where the client opens multiple parallel connections to the same server. In particular, Rodriguez and Biersack show assigning each object to at least one available network interface comprising assigning an object to

two or more available network interfaces if the size of the object exceeds a threshold (page 455 col. 2 lines 5-7, 17-20, 29-30; page 456 col. 1 lines 15-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by assigning each object to at least one available wireless network interface comprising assigning an object to two or more available wireless network interfaces if the size of the object exceeds a threshold in order to utilize two or more available gateways when connecting to a server (paragraph [0021] lines 17-20 in Viswanath).

As to claims 18 and 31, Viswanath in view of Greer shows all the elements except for assigning each object to at least one available wireless network interface comprises assigning an object to two or more available wireless network interfaces if the size of the object exceeds a threshold, wherein the threshold is a function of the bandwidth of available wireless network interfaces.

Rodriguez and Biersack show assigning each object to at least one available network interface comprising assigning an object to two or more available network interfaces if the size of the object exceeds a threshold, wherein the threshold is a function of the bandwidth of available wireless network interfaces (page 455 col. 2 lines 5-7, 17-20, 29-30; page 456 col. 1 lines 15-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by assigning each object to at least one available wireless network interface comprising assigning an object to two or more available wireless network interfaces if the size of the object exceeds a

threshold, wherein the threshold is a function of the bandwidth of available wireless network interfaces in order to utilize two or more available gateways when connecting to a server (paragraph [0021] lines 17-20 in Viswanath) such that the portion of a document delivered by one server should be proportional to its service rate, thus, a slow server will deliver a small part of the document while a fast server will deliver a large part of the document (Rodriguez and Biersack, page 455 col. 2 lines 17-20).

As to claims 19 and 32, Viswanath in view of Greer shows all the elements except for assigning each object to at least one available wireless network interface comprises assigning an object to two or more available wireless network interfaces if the size of the object exceeds a threshold, wherein the threshold is a function of the size of an object relative to the size of other objects in the virtual resource.

Rodriguez and Biersack show assigning each object to at least one available network interface comprising assigning an object to two or more available network interfaces if the size of the object exceeds a threshold, wherein the threshold is a function of the size of an object relative to the size of other objects in the virtual resource (page 455 col. 2 lines 5-7, 17-20, 29-30; page 456 col. 1 lines 15-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by assigning each object to at least one available wireless network interface comprising assigning an object to two or more available wireless network interfaces if the size of the object exceeds a threshold, wherein the threshold is a function of the size of an object relative to the size of other objects in the virtual resource in order to utilize two or more available gateways

when connecting to a server (paragraph [0021] lines 17-20 in Viswanath) such that the portion of a document delivered by one server should be proportional to its service rate, thus, a slow server will deliver a small part of the document while a fast server will deliver a large part of the document (Rodriguez and Biersack, page 455 col. 2 lines 17-20).

As to claims 20 and 33, Viswanath in view of Greer shows all the elements except for receiving objects over the plurality of assigned wireless network interfaces; and collating the received objects to construct the virtual resource.

Rodriguez and Biersack show receiving objects over the plurality of assigned wireless network interfaces; and collating the received objects to construct the virtual resource (page 455 col. 2 lines 7-9).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by receiving objects over the plurality of assigned wireless network interfaces; and collating the received objects to construct the virtual resource in order to provide the computing device that requested a resource an assembled resource.

As to claim 21, Viswanath shows all the elements except for transmitting the virtual resource to the computing device that originated the request.

Greer shows transmitting the virtual resource to the computing device that originated the request comprising server sending a response message to the client (step 704 Fig. 10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath by transmitting the virtual resource to the computing device that originated the request in order to complete the request-response communication between client and server.

Alternatively, Rodriguez and Biersack show transmitting the virtual resource to the computing device that originated the request (page 455 col. 2 lines 5-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the method of Viswanath in view of Greer by transmitting the virtual resource to the computing device that originated the request in order to complete the request-response communication between client and server.

As to claim 27, Viswanath in view of Greer shows all the elements except for the processor polling the wireless network interfaces on a periodic basis to determine characteristics of the communication connections managed by the wireless network interfaces.

Rodriguez and Biersack show that the processor polls the wireless network interfaces on a periodic basis to determine characteristics of the communication connections managed by the wireless network interfaces (page 455 col. 2 lines 20-23).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Greer by polling the wireless network interfaces on a periodic basis to determine characteristics of the communication connections managed by the wireless network interfaces in order to

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periodically determine information concerning the server's activities wherein a server contains at least one network interface.

As to claim 28, Viswanath in view of Greer shows all the elements except for the processor polling the wireless network interfaces in response to a received request to determine characteristics of the communication connections managed by the wireless network interfaces.

Rodriguez and Biersack show that the processor polls the wireless network interfaces in response to a received request to determine characteristics of the communication connections managed by the wireless network interfaces (page 455 col. 2 lines 30-38).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Greer by polling the wireless network interfaces in response to a received request to determine characteristics of the communication connections managed by the wireless network interfaces in order to dynamically determine information concerning the server's activities wherein a server contains at least one network interface.

As to claim 29, Viswanath in view of Greer shows all the elements except for the processor assigning objects to wireless network interfaces according to an algorithm that maximizes bandwidth.

Rodriguez in view of Biersack shows that the processor assigns objects to wireless network interfaces according to an algorithm that maximizes bandwidth (page 455 col. 2 lines 42-48 and page 456 col. 1 lines 1-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Greer by having the processor assigning objects to wireless network interfaces according to an algorithm that maximizes bandwidth in order to take advantage of parallel-access technique described by Rodriguez and Biersack.

11. Claims 34 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viswanath et al. (2007/0118670) in view of Greer et al. (US Patent No.: 5,978,828) and in further view of Holder (2003/0208554).

As to claim 34, Viswanath in view of Greer shows all the elements except for the processor being further configured to receive requested virtual resources transmitted across a plurality of wireless interfaces, and to store received virtual resources in the memory module.

Holder shows that the processor is further configured to receive requested virtual resources transmitted across a plurality of wireless interfaces, and to store received virtual resources in the memory module (paragraph [0024]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Greer by having the processor being further configured to receive requested virtual resources transmitted across a plurality of wireless interfaces, and to store received virtual resources in the memory module in order to enable local caching of requested resources that would reduce latency (paragraph [0024] in Holder).

As to claim 35, Viswanath in view of Greer shows all the elements except for the processor being further configured to receive requested virtual resources transmitted across a plurality of wireless interfaces, to store received virtual resources in the memory module, and to transmit received virtual resources over the local communication network interface.

Holder shows that the processor is further configured to receive requested virtual resources transmitted across a plurality of wireless interfaces, to store received virtual resources in the memory module (paragraph [0024]), and to transmit received virtual resources over the local communication network interface (paragraph [0004] and [0025]).

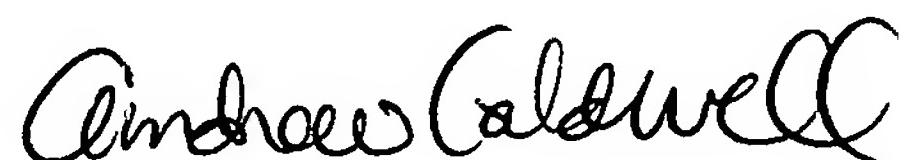
It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Viswanath in view of Greer by having the processor being further configured to receive requested virtual resources transmitted across a plurality of wireless interfaces, to store received virtual resources in the memory module and to transmit received virtual resources over the local communication network interface in order to enable local caching of requested resources that would reduce latency (paragraph [0024] in Holder) and enable the requesting client to receive response to the request.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Oleg Survillo whose telephone number is 571-272-9691. The examiner can normally be reached on M-Th 7:30am - 5:00pm; F 7:30am - 4:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Caldwell can be reached on 571-272-3868. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Examiner: Oleg Survillo

ANDREW CALDWELL
SUPERVISORY PATENT EXAMINER

Date: July 10, 2007

Phone: 571-272-9691